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Title: The role of the Beaufort Gyre in Arctic and global climate variability: An eddy-permitting ocean-sea ice model perspective (w18_hilatbg)

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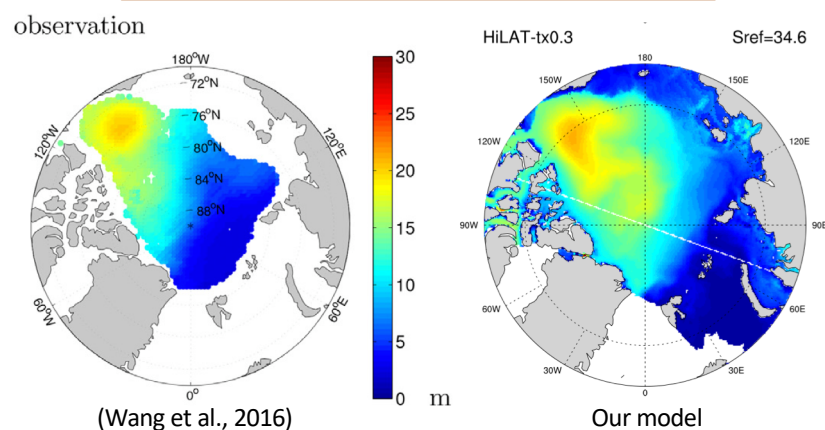
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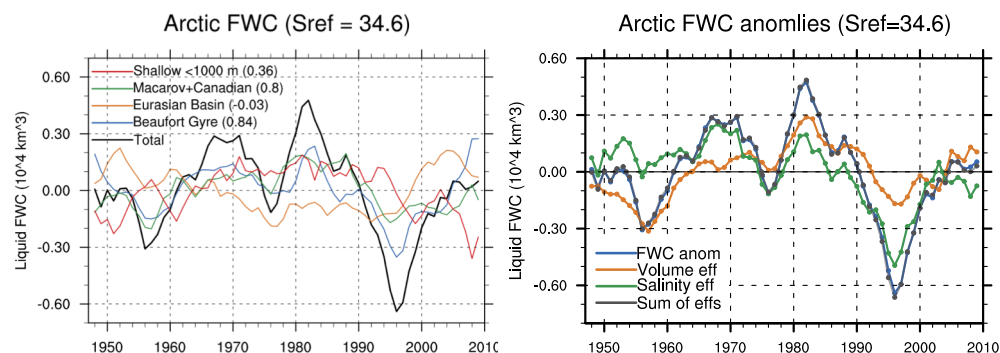
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Arctic freshwater content of 1993-2002



Our recently developed eddy-permitting ocean-sea ice model, E3SMv0-HiLAT-tx0.3, is among the best in simulating the Arctic freshwater content, when compared with other 14 ocean-sea ice models.

Decomposing the inter-annual freshwater content variability into sub-regions (left) and different components (right)



The left figure shows that the major contributors to the interannual are the Beaufort Gyre ($r=0.84$) and the Makarov and Canadian Basins ($r=0.80$). The right figure shows that the volume and salinity effects act in the same direction most of the time. That is, the layer thickens and gets fresher at the same time.